



Investigating metacognitive knowledge in reading comprehension: The case of Indonesian undergraduate students

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ABSTRACT

Myriad studies have conveyed that metacognition is a key to successful reading comprehension in language classes. However, these studies focus on metacognitive strategies, metacognitive awareness, and metacognitive skills in ESL reading contexts. Anchored by the lack of empirical works on the EFL reading situation, this study investigated the metacognitive knowledge of Indonesian undergraduate students in their reading classes. Data were obtained through in-depth interviews with four successful and four less successful EFL students. The results of this study portrayed that successful readers encompass more metacognitive knowledge, awareness, motivation, and behavior if compared to the less successful readers. It is also evidence that students with good cognition, habit, and attitude in reading activities are more successful in their EFL reading, and their cognition, habit, and attitude serve as essential elements in constructing their metacognitive knowledge. Suggestions are also discussed at the end of this paper.

Keywords: English as a foreign language student; metacognitive knowledge; reading comprehension

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INTRODUCTION

Scholars have reached a consensus that cognition is a thinking process, and metacognitive knowledge, specifically, refers to how a person realizes this thinking process. In this study, for the sake of a more contextual focus, we use both cognition and cognitive knowledge interchangeably since these two terms encompass shared orientation with different theoretical meanings (Marulis, Baker, & Whitebread, 2020; Moritz & Lysaker, 2018).

In recent years, there has been an increasing interest in EFL reading research such as in China (Ke & Chan, 2017; Yu & Reichle, 2017; Zhao et al., 2019), Korea (Kim, Liu, & Cao, 2017; Pae, Kim, Mano, & Wang, 2019), Japan (Takeuchi et al., 2018), Iran (Sadeghi, Khezrlou, & Modirkhameneh, 2017), and, assuredly, Indonesia (Aditomo & Hasugian, 2018;

Heriyawati, Saukah, & Widiati, 2018). These studies uncovered that reading is a central skill in promoting students' literacy, competence, and academic achievement. It is also an interactive and cognitive process because readers are active (Akkakoson, 2012) in constructing meaning during their reading activities. To construct the meaning, readers bring different kinds of knowledge to interpret and evaluate the meaning of texts. Understanding the meaning of the text will occur if the readers decode the texts based on available cognitive resources (Furnes & Norman, 2015).

Two aspects of reading, such as decoding and cognitive resources, lead to proficient reading competence and understanding the meaning of the texts. If the decoding process does not work in reading a text, the readers load more cognitive resources to read the words correctly (Furnes & Norman, 2015). However,

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fewer cognitive resources will lead the readers to use other knowledge and strategies such as skimming, skipping, and scanning in comprehending text. Besides, readers are the potential to encounter decoding and cognitive barriers if they do not fully understand texts. This problem can then be solved through sufficient metacognitive knowledge. It is a key factor for successful monitoring and control of reading (Kolić-Vehovec, Zubkovic, & Pahljina-Reinic, 2014). Planning how to approach the text, monitoring comprehension, and evaluating the progress of completing a task are examples of the metacognitive action of the readers (Livingston, 2003). Metacognition helps readers control their cognitive process in acquiring information and the meaning of a text.

Meanwhile, Oz (2005) considers metacognition as a complex process of knowledge about the cognition domain and its regulation, which consists of mental activities related to thinking, knowing, and remembering. It can be stated that in the EFL reading context, metacognition is a complex process in controlling and regulating cognitive experiences and awareness of the readers and how to activate cognitive knowledge, how to relate the prior knowledge with current texts, and how to solve the problem during reading activities. Metacognitive as knowledge is classified into three main categories: the learner, the learning task, and the process of learning (Wenden, 1998).

Metacognitive involves three categories, such as person, task, and strategy (Flavell, 1979). Person category means one's belief about the intraindividual category, inter-individual category, and universal category. In the Task category, learners' awareness of characteristics of the specific task is constructed, and how to manage and understand it (Oz, 2005). This category is categorized on task purpose, task type, and task demand (Flavell, 1979). The strategy category, additionally, is awareness of learners in applying metacognitive strategies during attending to a task. The most appropriate strategies for learners will promote successful completion of a task (Oz, 2005), and it includes learners' knowledge about cognitive and metacognitive strategies, when and where it is appropriate to use such strategies (Livingston, 2003). In this part, Wenden (1998, in Hauck, 2005) adds that knowledge about strategy or strategic knowledge depends on whether the focus is on the learner, the learning task, or the process of learning.

Several studies have suggested that students' metacognitive knowledge contributes to their successful language learning (Chevalier, Parrila, Ritchie, & Deacon, 2017; Zhang, 2018). Furthermore, Zhang (2018) argued that students' metacognition or metacognitive knowledge serves as an essential pedagogical inquiry in ESL/EFL and applied linguistics contexts. Metacognitive knowledge also enhances students' competence and learning autonomy since they can monitor and evaluate their own learning goals (Schiff, Ben-Shushan, & Ben-Atzi, 2017). It is also

associated with metacognitive beliefs, metacognitive awareness, metacognitive experiences, metacognitive knowledge, feeling of knowing, the judgment of learning, the theory of mind, metamemory, metacognitive skills, high-order skills, comprehension monitoring, learning strategies, and self-regulation (Wang, 2019).

Given its decent contribution in reading skills enactment, studies on metacognition partly focus on metacognitive awareness of reading strategies (Yüksel & Yüksel, 2012), metacognitive strategies and critical thinking (Altıok, Başer, & Yükseltürk, 2019), metacognitive awareness and the teaching of reading (Zhussupova & Kazbekova, 2016), metacognitive process and intelligence (Taub et al., 2019), and metacognitive awareness of doctoral social science student performance (Yang & Bai, 2019). This evidences that scholars have not considered another essential domain in metacognition, one of which is metacognitive knowledge.

In the context of English as a foreign language teaching in Indonesia, for instance, research on metacognitive knowledge of undergraduate students concerning their reading comprehension seems sparse from the empirical investigation. In fact, different cognitive enterprises (Aryadoust, 2019) and different language settings, as well as culture (Peets, Yim, & Bialystok, 2019), may influence students' metacognitive knowledge in practice. To fill this void, this study, therefore, investigated the metacognitive knowledge of undergraduate students of an English department in an Indonesian private university. The purposes were twofold: 1) exploring the metacognitive knowledge of English students in EFL reading and 2) documenting how they demonstrate knowledge, learning tasks, processes, and the use of reading strategies in EFL reading.

METHOD

Geared under an exploratory research paradigm, this study recruited four successful and four less successful EFL students enrolling in an English department of a private university in Malang, East Java, Indonesia. As one of the authors of this study is the reading lecturer, the successful and less successful criteria were mainly based on the students' reading scores; A for successful and C for less successful students. As can be seen in Table 1, the successful students are coded as A, B, C, and D, while the less successful students are coded as E, F, G, and H (see Table 2).

They were invited for an hour in-depth interview using semi-structured questions on metacognitive knowledge (person, task, and strategy). Prior to doing it, we sent a consent form to the participants. They all agreed to participate in this study. In the interview process, they were inquired about their perceptions of reading activity, such as motivation to read, self-efficacy, emotion, and attitude.

Table 1. Successful students' demographic data

No	Name (pseudonym)	Gender	Semester	English learning experiences	Reading Score
1	A	Male	3	8 years	A
2	B	Female	3	8 years	A
3	C	Female	3	8 years	A
4	D	Female	3	8 years	A

Table 2. Less Successful Students' Demographic Data

No	Name (pseudonym)	Gender	Semester	English learning experiences	Reading Score
1	E	Male	3	8 years	C
2	F	Female	3	8 years	C
3	G	Female	3	8 years	C
4	H	Female	3	8 years	C

The interview was conducted using participants' second language, immediately after the participants completed reading English and Indonesian texts. Each participant was asked to read the texts prior to the interview. The process of the interview, which lasted in an hour, was phone-recorded and transcribed in the verbatim model. The data obtained from the interview were then translated into English, and to assure its reliability and validity, we confirm the translation results to a professional translator, who is also a teaching staff in our department. In the case of missing information during an interview session or having technical problems with the recorder, we re-interviewed the participants to ensure internal data consistency.

Afterward, the data were analyzed based on Miles and Huberman's (1994) data analysis, namely, data reduction, data display, and conclusion. Eventually, the interview transcripts were classified into person, task, and strategy domains. To achieve ease in the analysis process, the three areas were coded into P (person), T (task), and S (strategy).

FINDINGS

Person category

In the person category aspect, successful readers have sufficient metacognitive knowledge as EFL readers. They are confident and frequently evaluate their reading ability. It is depicted from the following excerpts:

Excerpt 1:

"I really understand the text in which the text related to what I have read." (Student A)

Excerpt 2:

"I understand the content of the text if the topic is related to my daily lives, such as love, psychology, science, and education." (Student B).

Excerpt 3:

"It is easy for me to know the content from the reading passage if the topics presented related to my daily activities." (Student C).

The three successful readers declared that they have self-confidence in reading any texts, especially texts related to their previous reading activities. It

means that they recall their prior knowledge (cognitive and metacognitive strategies) when reading new texts. Unlike the successful readers, less successful readers contended that they do not have self-confidence and good ability in reading. They also did not recall their prior knowledge in reading new texts. For instance, one of the less successful students contended that:

Excerpt 4:

"I do not have good reading ability. I am aware that my reading ability is low, so I need to read more." (Student E).

Furthermore, self-efficacy, motivation, intraindividual, and interest are expressed differently by both successful and less successful readers. The successful readers consistently improve their reading ability by reading online English texts, books, novels, magazines, and comics. It is observed from the excerpts of Student A, B, C, and D. They shared that:

Excerpt 5:

"I read English novels and always read English comics, and it is very helpful for me to improve my English." (Student A).

Excerpt 6:

"I like to read English textbooks such as psychology and science, and I also help my roommate to translate their English tasks." (Student B).

Excerpt 7:

"I read my roommate's English newspaper and books when I did not understand the content, and I discussed it with my roommate to get my understanding." (Student C).

Excerpt 8:

"I read online texts such as sports news and English comic using Apps on my mobile phone." (Student D).

Meanwhile, less successful readers are less interested in improving their English reading ability. Some of them even never read English texts. For instance, Student E shared that:

Excerpt 9:

"I never read other English texts because the vocabularies are difficult. I just read the Indonesian novel."

In other cases, one of them preferred to read online English texts such as quotes and short stories, for example, Student G contended that:

Excerpt 10:

"I like reading quotes on Instagram and English short stories on a website."

The successful readers tend to have self-efficacy, self-motivation, inter-individual characteristics, and interest in improving their English ability, especially reading. Mostly, less successful readers tend to be passive students, less motivated, fewer interests, and less inter-individual characteristics in improving their reading ability, only one of them who has self-motivation, self-efficacy, and interest in enhancing her reading ability. In addition, successful readers have strong knowledge about themselves in terms of self-efficacy, motivation, intra-individual, and interest, and less successful readers do not have.

Task category

In this section, both successful and less successful students perceive that Indonesian and English texts are different in terms of vocabulary. They did not mention the different structures, particularly among the two languages. When we disseminate the reading texts (Indonesian and English versions), both successful and less successful students favored reading the Indonesian texts. Student B, for instance, commented that:

Excerpt 11:

"I read the Indonesian texts because Indonesian text is easier than English in terms of vocabulary."

The Indonesian texts are very familiar to them as well as close to their daily spoken and written communication. The differences between the two texts, according to them, are on the vocabulary. It is noted that vocabulary is essential for successful EFL reading. Knowing more English vocabulary will help them understand the text.

The different task knowledge, both successful and less successful, is on task purpose and task demand. Both successful and less successful readers express a different opinion about the purpose of the reading. In addition to enriching vocabulary, successful readers consider that the purpose of reading is to gain information, understand texts, and find out the main ideas. These facts were depicted from the following excerpts:

Excerpt 12:

"The purpose of reading is to find the topic rather than knowing the meaning of every word. If I do not know some difficult words, I can guess it from the contexts."(Student A)

Excerpt 13:

"Besides getting the main idea, I also focused on grammar because knowing the grammar will help me to get the main point of the text."(Student C)

Excerpt 14:

"I read to get information from the text."(Students G)

Furthermore, both successful and less successful readers are different in task demand and how to understand the English texts. They shared that:

Excerpt 15:

"When I read English texts, I read the conclusion of texts."(Student B).

Excerpt 16:

"I read the text from the last paragraph, continue to the body of a paragraph." (Student C).

Interestingly, the less successful readers focus on vocabulary and translating the unknown words. It is evident from this excerpt:

Excerpt 17:

"If I find the meaning of unfamiliar words in the texts, sometimes I write the words and find the definition in the dictionary using my mobile phone." (Student F).

In summary, the task category of both successful and less successful readers is different. The successful readers have sufficient task understanding rather than the less successful readers. However, successful readers sometimes focus on vocabulary and grammar. On the contrary, the less successful readers frequently list new words to help their understanding of the texts, and it indicates that they have insufficient task understanding.

Strategy category

Successful readers demonstrate varied strategies in understanding texts. They are aware that reading strategy helps them complete the reading tasks, for example:

Excerpt 18:

"I commonly read the English text from the last paragraph to the middle and first paragraph because the last paragraph of the English text is the conclusion, and it describes the content." (Student F).

In reading the texts, Student B also underlines the essential words, phrases, or sentences. She confirms that the strategies help her understand the English texts easily. Students C, interestingly, has a different way of understanding the texts. She understands the texts by finding out the essential and informational words related to the whole texts. Besides, she also reads the introduction of the texts repeatedly until she obtains the important point from the text. In her opinion, the introduction section gives a brief description of the content of the texts. It is depicted in the interview process:

Excerpt 19:

"I usually read from the first paragraph, like the introduction section. I read it many times. This part commonly gives clues on the main idea or content of the whole text." (Student C).

Similarly, Student A also uses a particular strategy in his reading activities. In understanding a text, he uses skimming and scanning strategy, and he reads the sentences containing difficult words and tries to find out the topic. Other successful readers, Student D, reports that retelling is suitable for her. She argued that retelling

strategy is useful in understanding the texts. Similarly, both Student A and Student D respond that their comprehension is getting increased by at least 65% after doing the strategies in 15 minutes. In sum, successful readers use specific reading strategies to understand texts. Their prior knowledge about reading strategy has been activated in reading new texts.

Excerpt 20:

"I like using skimming and scanning techniques. Sometimes, I try to understand the words that seem difficult to understand." (Student A).

Excerpt 21:

"In semester two, I did a lot of retelling activities. I retell the text that I have read to my friends. It makes me understand more." (Student D).

Less successful readers, however, do not employ specific strategies in understanding the texts. When asked to read the English texts, they performed it without any significant efforts to understand the content. Although they have no specific reading strategies, they are aware that their English vocabularies are insufficient. It can be observed from the excerpts of Student G and Student H. They shared that:

Excerpt 22:

"I always try to understand the text from the main idea, Sir.....But sometimes, I don't understand vocabulary. It is hard for me if I don't understand the words meaning in the text."(Student H).

Excerpt 23:

"I read all paragraphs in the text, and then I look for the meaning of the text. I don't have specific strategies in reading, Sir." (Student G).

Both Student G and Student H did reading activities repeatedly to store vocabulary as many as possible, which can later stimulate their cognitive aspects. Reading strategies are not the only way to help the less successful readers in understanding the texts. As revealed by Student G, selecting the time for reading also influenced her understanding. She conveyed that:

Excerpt 23:

"I have a special time for my reading; I could understand the texts when I read it after midnight prayer, before Morning Prayer."

This response shows that less successful readers also employ reading strategies, although these strategies do not directly lead them to understand the texts. Thus, it is categorized as self-efficacy in learning.

DISCUSSION

In terms of person category, both successful and less successful readers have dissimilar knowledge about themselves as readers. In the interview, the participants shared their self-efficacy, motivation, interest, and intraindividual in reading texts, as shown from Excerpts 5-7 and Excerpt 10. Previous studies have also uncovered that self-efficacy (Aro et al., 2018), motivation (Hwang, 2019), interest (Pezoa, Mendive, &

Strasser, 2019), and intraindividual (Lou & Noels, 2019) are much attributed to reading activity. Successful and less successful readers in this study are basically aware of themselves and how they should enact to be effective readers.

The findings of this study also show that from the statements of three successful readers (see Excerpts 12, 13, and 15), they have more self-confidence in reading any texts. They could estimate their understanding of the texts. Zhang (2018) reveals that successful readers believed that self-confidence facilitates learning because higher proficiency levels and self-rapport of the students are reliable indicators of readers' confidence. Students' estimation of their comprehension shows that they have a belief in their ability to accomplish a task, and it is considered as self-efficacy (Zhang & Ardasheva, 2019).

The self-confidence of students is a part of self-efficacy, and it affects students' metacognition. The students' metacognition may depend on their cognitive processes and efforts. It is evident that successful comprehension in EFL reading does not occur automatically (Ferede & Nchindila, 2017), and it rather depends on the directed cognitive effort of the students, referred to as their metacognitive processes, which consists of knowledge about and regulation of cognitive processing (Helmstaedter, Durch, Hoppe, & Witt, 2019). Therefore, the metacognitive knowledge of students will appear if they have good processes and efforts on their cognition. As a result, the input of cognition knowledge influences students' metacognition, both knowledge and strategies.

Other important aspects of being successful readers, such as self-efficacy, motivation, intraindividual characteristics, and interest of the students, also affect their reading comprehension. Brown (2007) argued that internal and external motivation encourages the students to succeed in a task. Furthermore, Bruning, Schraw, Norby, and Ronning (2004) adds that self-efficacy will help students perform well in any academic setting. Our findings correspond to what Brown (2007) and Bruning et al. (2004) have documented previously, in which successful readers are more active, highly motivated, have good inter-individual characters, and interest in acknowledging themselves to be successful learners. Thus, person category of successful and less successful readers differ in term of motivation, self-efficacy, self-confidence, inter-individual characteristic, and interest.

Empirically, the participants of this study view no differences between the Indonesian and English texts. Thus, the present study shows that both successful and less successful students encountered no variety of tasks. Besides, the participants have different knowledge of task purpose and task understanding. The successful readers use their declarative knowledge and procedural knowledge in understanding the tasks intensively, as depicted in Excerpt 12. In this case, Zhang & Ardasheva (2019) believed that readers who have metacognitive awareness interpret a reading task based on context, and they select reading strategies in relation to reading

purposes, task demand, and their cognitive styles. Meanwhile, in completing a task, learners involve declarative knowledge (learners know what factor influence the performance) and procedural knowledge (learners use many reading comprehension strategies such as taking notes, slowing down for relevant information, summarizing the main idea) (Stephanou, & Mpiontini, 2017).

In terms of strategy category, our study unveils that successful readers use reading strategies in comprehending specific texts such as skimming, scanning, underlying, paying attention to relevant information, and retelling, as conveyed by Student A in the Excerpt 20. It is thus in line with research documenting that successful learners use different strategies from unsuccessful learners (Zhang, Thomas, & Qin, 2019), and ineffective learners are inactive learners (Van Laer & Elen, 2019). In Indonesian academic contexts, most successful learners intensively use strategies in their language learning, especially metacognitive strategies (Cai, King, Law, & McInerney, 2019).

The strategies implemented by successful readers are to understand sentences during their reading activities. Razi and Çubukçu (2014) contended that readers' metacognition will plan the reading task, monitor whether a coherent representation of the text is being maintained, and adopt different processing strategies related to the goals and outcomes of the ongoing reading. However, successful readers in our study show insufficient reading strategies when understanding different tasks. Therefore, the strategy that they used refers to reading strategy awareness rather than strategy category while they are reading a text.

CONCLUSION

This study documented Indonesian undergraduate students' metacognitive knowledge of reading through three categories (person, task, and strategy) and how they enact the metacognitive knowledge in the reading process. It is observed that successful readers encompass more metacognitive knowledge if compared to the less successful readers. In terms of Person Category, successful readers construed themselves as competent readers and gradually assessed their reading activities. It is, on the contrary, different from the less successful readers who are less engaged in their reading activities. In terms of task category, successful readers employ a range of activities and encompass a variety of resources for their reading activities.

Meanwhile, these domains are not seen among the less successful readers. They, on the other hand, deploy very limited tasks in the reading activities. Lastly, in the context of the strategy category, successful readers use varied strategies to understand texts, such as underlining paragraphs and reading from the last paragraph to conclude the texts. It, however, does not happen to the less successful readers. They seem to employ

unspecified strategies in reading. As a result, they encounter many hindrances in understanding the reading materials.

This study may be open to some limitations. First, controlling and classifying successful and less successful readers based on the academic reading score may lead to unreliable students' reading competence. Second, the process of selecting participants remain simple. Therefore, similar studies employing more participants using random sampling techniques are encouraged. Besides, investigating the relationship among components of metacognitive knowledge and strategies in EFL reading across culture, participant, age, and gender is also promising.

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REFERENCES

- Aditomo, A., & Hasugian, E. J. (2018). Indonesian adolescents' EFL reading comprehension: Gender differences and the influence of parental background. *Indonesian Journal of Applied Linguistics*, 8(2), 325-335. doi: 10.17509/ijal.v8i2.13279
- Akkakoson, S. (2012). Raising strategic awareness of Thai EFL students of science and technology disciplines through metacognitive strategy training. *3L: Language, Linguistics, Literature*, 18(4), 35-47.
- Altıok, S., Başer, Z., & Yükseltürk, E. (2019). Enhancing metacognitive awareness of undergraduates through using an e-educational video environment. *Computers & Education*, 139(1), 129-145. doi: 10.1016/j.compedu.2019.05.010
- Aro, T., Viholainen, H., Koponen, T., Peura, P., Räikkönen, E., Salmi, P., Sorvo, R., & Aro, M. (2018). Can reading fluency and self-efficacy of reading fluency be enhanced with an intervention targeting the sources of self-efficacy? *Learning and Individual Differences*, 67(1), 53-66. doi: 10.1016/j.lindif.2018.06.009
- Aryadoust, V. (2019). An integrated cognitive theory of comprehension. *International Journal of Listening*, 33(2), 71-100. doi: 10.1080/10904018.2017.1397519
- Brown, H. D. (2007). *Principles of language learning and teaching*. (5th edn.). New York: Pearson Education.
- Bruning, R., Schraw, G., Norby, M., & Ronning, R. (2004). *Cognitive psychology and instruction* (4th edn.). Upper Saddle River, New Jersey: Pearson Education Inc.

- Cai, Y., King, R. B., Law, W., & McInerney, D. M. (2019). Which comes first? Modeling the relationships among future goals, metacognitive strategies and academic achievement using multilevel cross-lagged SEM. *Learning and Individual Differences*, 74(1). doi: 10.1016/j.lindif.2019.06.004
- Chevalier, T. M., Parrila, R., Ritchie, K. C., & Deacon, S. H. (2017). The role of metacognitive reading strategies, metacognitive study and learning strategies, and behavioral study and learning strategies in predicting academic success in students with and without a history of reading difficulties. *Journal of Learning Disabilities*, 50(1), 34–48. doi: 10.1177/0022219415588850
- Ferede, T., & Nchindila, B. M. (2017). EFL reading goals of grade 11 students across public and non-public schools in Addis Ababa, Ethiopia. *Heliyon*, 3(9). doi: 10.1016/j.heliyon.2017.e00396
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 34(1), 906–911. doi: 10.1037/0003-066X.34.10.906
- Furnes, B., & Norman, E. (2015). Metacognition and reading: Comparing three forms of metacognition in normally developing readers and readers with dyslexia. *Dyslexia*, 21(1), 273–284. doi: 10.1002/dys.1501
- Helmstaedter, C., Durch, P., Hoppe, C., & Witt, J.-A. (2019). Is the computerized assessment of psychomotor speed more sensitive to cognitive effects of antiepileptic pharmacotherapy than tests with a focus on higher-order cognitive processing? Implications for the choice of sensitive test parameters. *European Neuropsychopharmacology*, 29(11), 1273–1281. doi: 10.1016/j.euroneuro.2019.09.010
- Heriyawati, D. F., Saukah, A., & Widiati, U. (2018). Working memory capacity, content familiarity, and university EFL students' reading comprehension. *Indonesian Journal of Applied Linguistics*, 8(1), 21–27. doi: 10.17509/ijal.v8i1.11458
- Hwang, H. (2019). The role of science domain knowledge and reading motivation in predicting informational and narrative reading comprehension in L1 and L2: An international study. *Learning and Individual Differences*, 76(1), 1–11. doi: 10.1016/j.lindif.2019.101782
- Ke, S., & Chan, S. (2017). Strategy use in L2 Chinese reading: The effect of L1 background and L2 proficiency. *System*, 66(1), 27–38. doi: 10.1016/j.system.2017.03.005
- Kim, S. Y., Liu, L., & Cao, F. (2017). How does first language (L1) influence second language (L2) reading in the brain? Evidence from Korean-English and Chinese-English bilinguals. *Brain and Language*, 171(1), 1–13. doi: 10.1016/j.bandl.2017.04.003
- Kolić-Vehovec, S., Zubković, B. R., & Pahljina-Reinić, R. (2014). Development of metacognitive knowledge of reading strategies and attitudes toward reading in early adolescence: The effect on reading comprehension. *Psihologijske Teme*, 23(1), 77–98.
- Livingston, J. A. (2003). *Metacognition: An overview*. Retrieved from <https://eric.ed.gov/?id=ED474273>.
- Lou, N. M., & Noels, K. A. (2019). Promoting growth in foreign and second language education: A research agenda for mindsets in language learning and teaching. *System*, 86(1), 143–153. doi: 10.1016/j.system.2019.102126
- Marulis, L. M., Baker, S. T., & Whitebread, D. (2020). Integrating metacognition and executive function to enhance young children's perception of and agency in their learning. *Early Childhood Research Quarterly*, 50(2), 46–54. doi: 10.1016/j.ecresq.2018.12.017
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd edn.). Sage Publications, Inc.
- Moritz, S., & Lysaker, P. H. (2018). Metacognition – What did James H. Flavell really say and the implications for the conceptualization and design of metacognitive interventions. *Schizophrenia Research*, 201(1), 20–26. doi: 10.1016/j.schres.2018.06.001
- Oz, H. (2005). Metacognition in foreign/second language learning and teaching. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 29(1), 147–156.
- Pae, H. K., Kim, S.-A., Mano, Q. R., & Wang, M. (2019). Another look at the role of vowel letters in word reading in L2 English among native Korean readers. *Journal of Neurolinguistics*, 50(1), 82–93. doi: 10.1016/j.jneuroling.2018.01.004
- Peets, K. F., Yim, O., & Bialystok, E. (2019). Language proficiency, reading comprehension and home literacy in bilingual children: The impact of context. *International Journal of Bilingual Education and Bilingualism*, 22(1), 1–15. doi: 10.1080/13670050.2019.1677551
- Pezoa, J. P., Mendive, S., & Strasser, K. (2019). Reading interest and family literacy practices from prekindergarten to kindergarten: Contributions from a cross-lagged analysis. *Early Childhood Research Quarterly*, 47(2), 284–295. doi: 10.1016/j.ecresq.2018.12.014
- Razı, S., & Çubukçu, F. (2014). Metacognition and reading: Investigating intervention and comprehension of EFL freshmen in Turkey. *Procedia - Social and Behavioral Sciences*, 158(1), 288–295. doi: 10.1016/j.sbspro.2014.12.090
- Sadeghi, K., Khezrlou, S., & Modirghameneh, S. (2017). Calling Iranian learners of L2 English: Effect of gloss type on lexical retention and reading performance under different learning conditions: Gloss Type, Lexical Retention and Academic Reading. *Journal of Research in*

- Reading*, 40(1), 66–86. doi: 10.1111/1467-9817.12088
- Schiff, R., Ben-Shushan, Y., & Ben-Artzi, E. (2017). Metacognitive strategies: A foundation for early word spelling and reading in kindergartners with SLI. *Journal of Learning Disabilities*, 50(2), 143–157. doi: 10.1177/0022219415589847
- Stephanou, G., & Mpiontini, M. (2017). Metacognitive knowledge and metacognitive regulation in self-regulatory learning style, and in its effect on performance expectation and subsequent performance across diverse school subjects. *Psychology*, 8(12), 1941–1975. doi: 10.4236/psych.2017.812125
- Takeuchi, A., Ogino, T., Koeda, T., Oka, M., Yorifuji, T., Takayanagi, T., Sato, K., Sugino, N., Bonno, M., Nakamura, M., & Kageyama, M. (2018). Intelligence test at preschool-age predicts reading difficulty among school-aged very low birth weight infants in Japan. *Brain and Development*, 40(9), 735–742. doi: 10.1016/j.braindev.2018.05.002
- Taub, M., Azevedo, R., Rajendran, R., Cloude, E. B., Biswas, G., & Price, M. J. (2019). How are students' emotions related to the accuracy of cognitive and metacognitive processes during learning with an intelligent tutoring system? *Learning and Instruction*, 65(1), 233–242. doi: 10.1016/j.learninstruc.2019.04.001
- Van Laer, S., & Elen, J. (2019). The effect of cues for calibration on learners' self-regulated learning through changes in learners' learning behaviour and outcomes. *Computers & Education*, 135(1), 30–48. doi: 10.1016/j.compedu.2019.02.016
- Wenden, A. L. (1998). Metacognitive knowledge and language learning. *Applied Linguistics*, 19(4), 515–537. doi: 10.1093/applin/19.4.515
- Yang, C., & Bai, L. (2019). The use of metacognitive strategies by Chinese PhD students of social sciences in Australian universities. *International Journal of Educational Research*, 97(1), 43–52. doi: 10.1016/j.ijer.2019.06.007
- Yu, L., & Reichle, E. D. (2017). Chinese versus English: Insights on cognition during reading. *Trends in Cognitive Sciences*, 21(10), 721–724. doi: 10.1016/j.tics.2017.06.004
- Yüksel, İ., & Yüksel, İ. (2012). Metacognitive awareness of academic reading strategies. *Procedia - Social and Behavioral Sciences*, 31(1), 894–898. doi: 10.1016/j.sbspro.2011.12.164
- Zhang, L. (2018). *Metacognitive and cognitive strategy use in reading comprehension*. Singapore: Springer.
- Zhang, L. J., Thomas, N., & Qin, T. L. (2019). Language learning strategy research in System: Looking back and looking forward. *System*, 84(1), 87–92. doi: 10.1016/j.system.2019.06.002
- Zhang, X., & Ardasheva, Y. (2019). Sources of college EFL learners' self-efficacy in the English public speaking domain. *English for Specific Purposes*, 53(1), 47–59. doi: 10.1016/j.esp.2018.09.004
- Zhao, Y., Wu, X., Sun, P., Xie, R., Feng, J., & Chen, H. (2019). The relationship between morphological awareness and reading comprehension among Chinese children: Evidence from multiple mediation models. *Learning and Individual Differences*, 72(2), 59–68. doi: 10.1016/j.lindif.2019.04.005
- Zhussupova, R., & Kazbekova, M. (2016). Metacognitive strategies as points in teaching reading comprehension. *Procedia - Social and Behavioral Sciences*, 228(1), 593–600. doi: 10.1016/j.sbspro.2016.07.091